

Proposed Abstract for I/ITEC 2000

Toward Validating A Generic Rotorcraft Model Structure

For the

Emerging Concepts Technology Applications Categories

By

Dean Carico, AIR 4.11.3.2

Bldg 2113, Unit 1

22717 Saufley Road

NAWCAD Patuxent River, MD

Telephone: (301) 342-1382

FAX: (301) 342-1340

Caricogd@navair.navy.mil

The high projected cost associated with rotorcraft flight testing and training in the New Millennium needs to be minimized using emerging technology applications. In the past, each service has employed the tendency to develop individual models to support training applications for specific aircraft. Reductions in recent DoD procurement budget imply that multi-service partnerships will be very important in the New Millennium. Testing and training cost reductions may be realized using standardization and automation options in the form of generic structure aircraft models. In theory, the generic simulation structure can be readily set-up to represent a variety of air vehicle models to support testing and training requirements. The ability to select the model level of complexity required for specific applications is also desirable. Comparing a comprehensive engineering rotorcraft model to a reduced order real-time model of the same vehicle will allow the user to address selective fidelity issues. For any model the issues of verification, validation, and accreditation are very important. Basic validation involves comparing the analytical model response to flight test data. This paper examines the fidelity of a generic structure rotorcraft model in the low airspeed flight regime. Specific low speed mission applications are also examined.

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Biography

Dean Carico is an aerospace engineer in the rotorcraft shipboard suitability group in test and evaluation engineering at the Naval Air Warfare Center at Patuxent River, MD. Dean initiated a high performance computing program on flight test automation, a rotorcraft simulation to support flight testing program, and over fifteen small business innovative research programs that focus on enhancing rotorcraft flight testing. Dean developed the Joint Enhanced Rotorcraft Test and Operational Capability (JERTOC) JT&E concept in 1997. Dean has masters degrees in Aerospace Engineering from Princeton and in Engineering Science from the Navy Postgraduate School, and is an engineering graduate from the USNTPS. He received the Meritorious Civilian Service Award for testing in a combat zone in 1973, and the Richard L. Wernecke Award for technical excellence in rotorcraft test and evaluation in 1997.